

# **RHIC Machine/Detector Planning Meeting**

13 Apr 05

## **Agenda**

- **Schedule Issues – (Montag)**
- **Polarized Proton Setup Progress (Bai)**
  - **AGS pp development**
  - **AGS Cold Snake**
  - **CNI Polarimeter**
  - **Jet Target**
  - **Other**
- **Report from experiments (STAR,PHENIX,BRAHMS)**
  - **pp preparations**
- **RCF Issues (Throwe)**
- **Other business**

Planning Meeting Web Site: [http://www.c-ad.bnl.gov/esfd/RMEM/rhic\\_planning.htm](http://www.c-ad.bnl.gov/esfd/RMEM/rhic_planning.htm)

# 400 GeV pp Run Issue 13 Apr 05

## Summary of last week's discussion (Y. Makdisi)

### ➤ Machine issues

- 3 days to setup ramps
- 3+ days to establish adequate polarization
- Would like to start mid-May, before PAC meeting (3<sup>rd</sup> week of May)
- Prefer 1.5 day PHOBOS at end of run

### ➤ Experiments issues

- PHOBOS – strong advocate for short physics run, above schedule OK
- STAR – decide after pp physics is established, priority is to integrate 22 pb<sup>-1</sup>, at expense of 400 GeV run if necessary
- PHENIX – somewhat in agreement with STAR but official position is to reserve time for a 400 GeV test run

### ➤ Status:

- Experiments are to firm-up their positions and come back (next week?) with one page summaries that supports their respective position

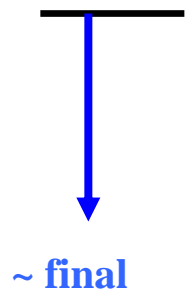
# RHIC Machine/Detector Planning Meeting

- ***RHIC Run5 Plan (estimate based on present understanding of budget)***
  - **18 Nov 04 – Cool down begins**
  - **23 Nov 04 – Blue Ring Cold**
  - **28 Nov 04 – Yellow Cold**
  - **29 Nov 04 – Short in D6-D8 dipoles Yellow Ring, schedule delay**
  - **3 Dec 04 – quad bus-bus short in sector 12, shutdown to repair**
  - **27 Dec 04 – short problem resolved, rings at 4 degrees again**
  - **27 Dec 04 - “2 week” RHIC setup with beam began**
  - **28-29 Dec 04 – found & fixed aperture problem in Yellow Ring (Al foil)**
  - ***5 Jan 05 – “2 week” ramp-up with colliding beams began***

# RHIC Machine/Detector Planning Meeting

- **Details – as run/planned**

- *11 Jan – Physics with Cu-Cu began*
- *7 Mar (0800) – end 200 GeV/n Cu-Cu*
- *7-9 Mar – Setup 62.4 GeV/n Cu-Cu*
- *9-15 Mar - 62.4 GeV/n Cu-Cu Physics*
- *10 March – Physics begins*
- *15 Mar – 8 hours at injection energy 10 March – Physics begins*
- *15-22 (1400) Mar - 62.4 GeV/n Cu-Cu Physics*
- *22 (1400)-24 (0800) March Cu-Cu Physics at RHIC Injection*
- *24 Mar (0800) – End of 10.3 week Cu-Cu run, 8 hr maintenance*
- *24-30 Mar – begin 3 week pp setup*
- *30 Mar - 1 Apr 05 Cold Snake/Jet Installation/CNI etc*
- *1-16 Apr – complete 3 week pp setup (7 April, overnight stores for experiments started)*
- *16 Apr – Begin 10.0 week pp Physics run*
- *25 Jun – end pp run, RHIC Run 5 ends*
- *30 Jun – Cryo switch to LN<sub>2</sub> complete, 32.0 weeks of RHIC cryo operation ends*



# Experiment Goals RHIC Run 5, 31.2 x31.2 GeV/n and 11.2x11.2 GeV/n CuCu and Final Results (3/30/05)

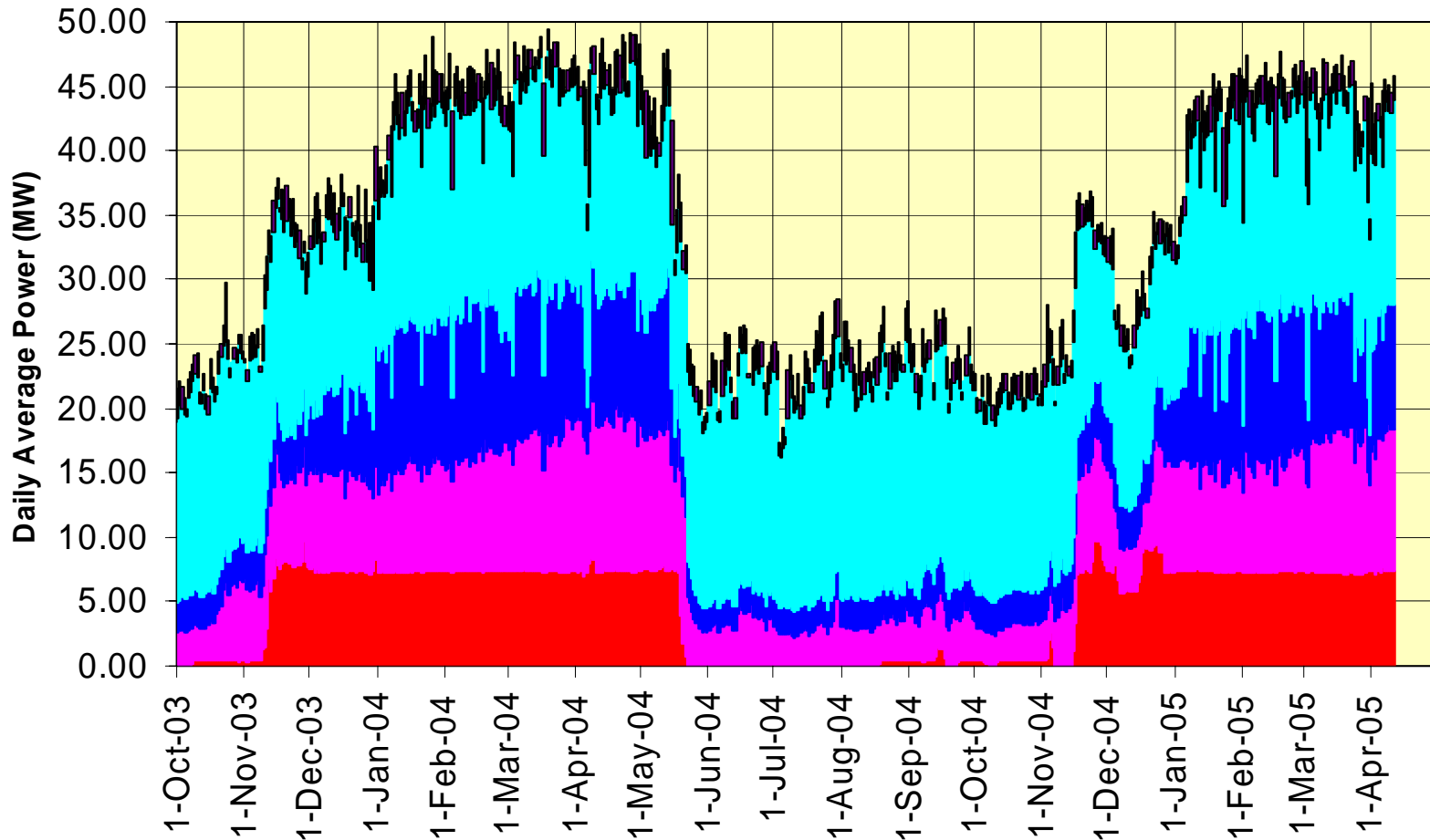
- **BRAHMS**
  - 62 GeV, Integrated Recorded Luminosity Goal  $90 \mu\text{b}^{-1}$   
Actual recorded luminosity  $120 \mu\text{b}^{-1}$  (133% of goal)
  - 22 GeV, Goal 1.5M FFS triggers recorded  
Actual recorded 1.9M triggers (126% of goal)
- **PHENIX**
  - 62 GeV, Integrated Delivered Luminosity Goal =  $250 \mu\text{b}^{-1}$   
Integrated Recorded Luminosity Goal  $92 \mu\text{b}^{-1}$   
Actual recorded luminosity  $190 \mu\text{b}^{-1}$  (206% of goal)
  - 22 GeV, ~20M recorded events  
Actual recorded 23.8M events (119% of goal)
- **PHOBOS**
  - 62 GeV, Goal 250M events to tape, minimum Goal 100M events  
Actual recorded 115M events (115% of minimum goal)
  - 22 GeV, Goal 8M events to tape  
Actual recorded 20M events (250% of goal)
- **STAR**
  - 62 GeV, Min bias, Goal >20M events to tape  
Actual recorded 27.3M events (136% of goal)
  - 22 GeV, Min bias, Goal >1M events to tape  
Actual recorded 3.85M events (385% of goal)

as of 11 Apr

## BNL Energy Use FY 2004-5

(C-AD Bldg power is in site base)

- Peak-Av
- Site Base
- RHIC other
- AGS
- RHIC Cryo



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**Archive**

# Experiment Goals RHIC Run 5, 100x100 GeV/n CuCu,

## Summary of Results (3/23/05 update)

- **BRAHMS**
  - Soft physics goal  $0.8 \text{ nb}^{-1}$  recorded, achieved  $0.8 \text{ nb}^{-1} \rightarrow 100\%$  of goal
  - High-Pt goal  $2.4 \text{ nb}^{-1}$  recorded, achieved  $1.75 \text{ nb}^{-1} \rightarrow 73\%$  of goal
- **PHENIX**
  - Integrated recorded luminosity goal (live BBCLL1)  $2.9 \text{ nb}^{-1}$ , achieved  $3.06 \text{ nb}^{-1} \rightarrow 105\%$  of goal
- **PHOBOS**
  - Goal 1000M events to tape, achieved 500M  $\rightarrow 50\%$  of minimum goal
  - Minimum Goal 400M events to tape, achieved 500M  $\rightarrow 125\%$  of minimum goal
- **STAR**
  - Min bias, Goal 80M events, recorded 64.5M events  $\rightarrow 80\%$  of goal
  - High Pt Trigger (BEMC HT18), Goal to sample  $1\text{-}2 \text{ nb}^{-1}$ , recorded  $>1 \text{ nb}^{-1} \rightarrow 100\%$  of goal



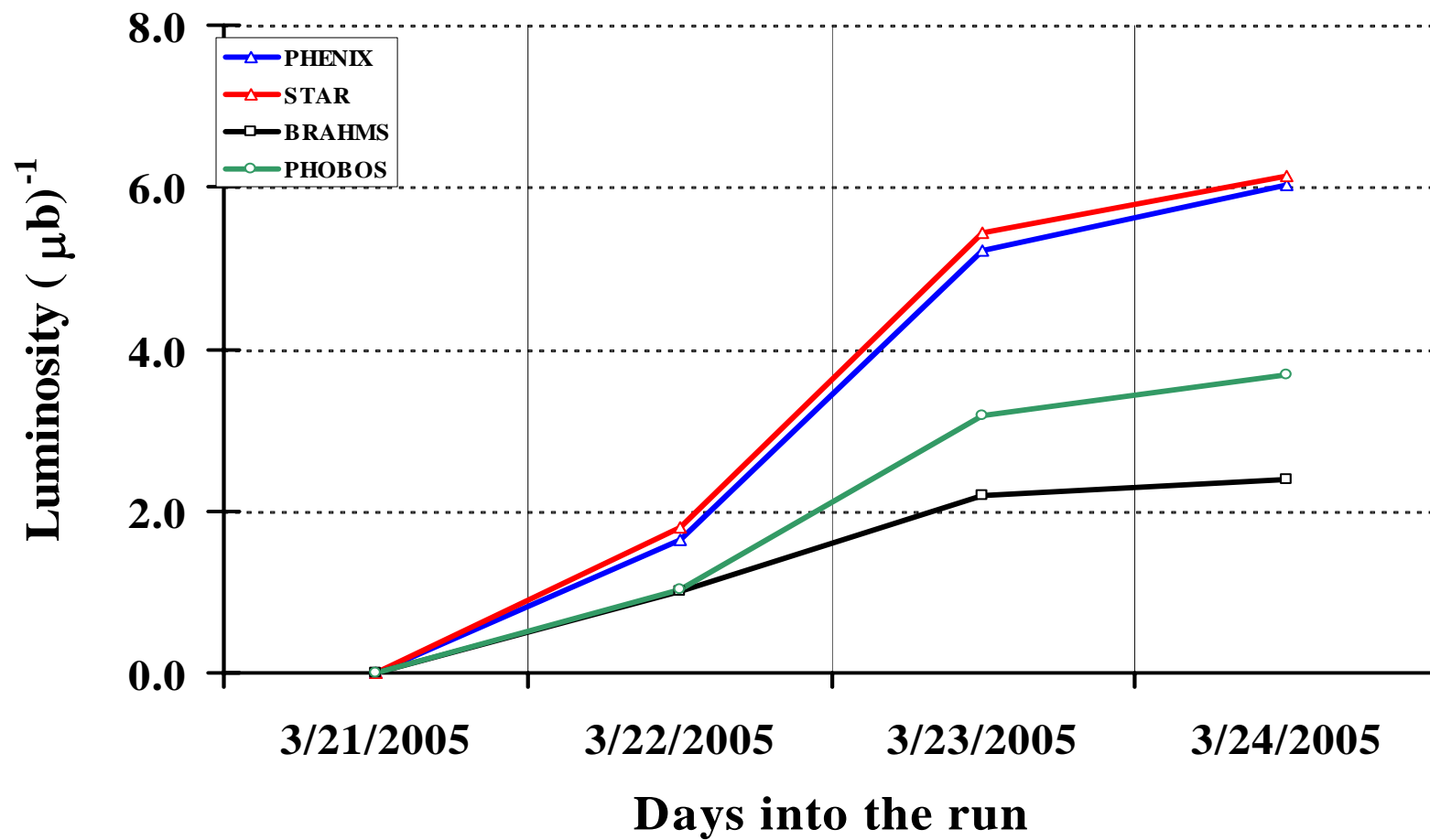
# RHIC Machine/Detector Planning Meeting

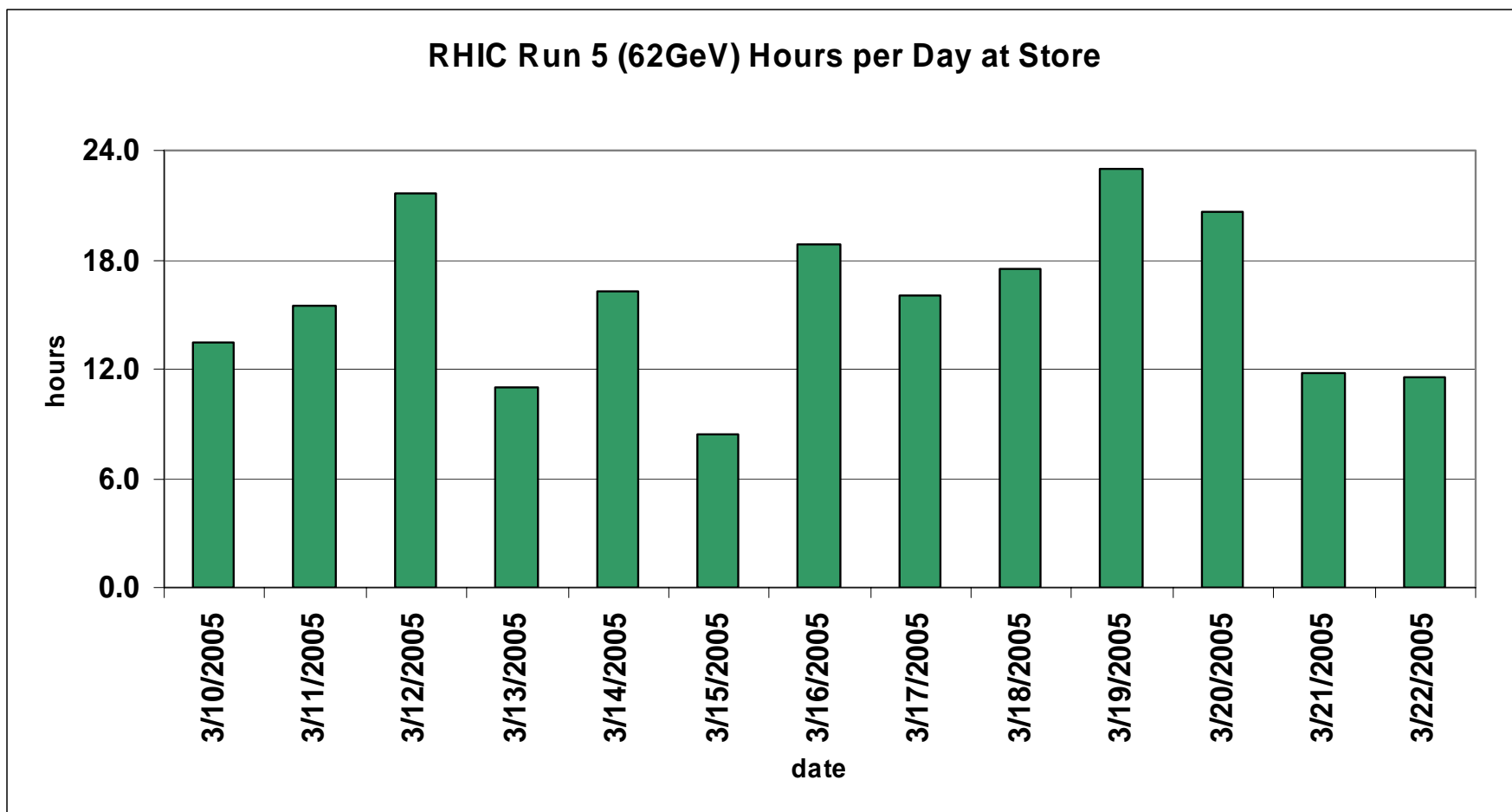
17 November 2004

## PAC Recommendations (very short summary):

- 8-10 week pp run should have highest priority
- Cu-Cu run should accumulate an integrated delivered luminosity of at least  $7 \text{ nb}^{-1}$  at  $\sqrt{s} = 200 \text{ GeV}$
- Cu-Cu at  $\sqrt{s} = 62.4 \text{ GeV}$  and 1 day at injection is advisable if above goals are met
- 1-2 day pp (unpolarized) run at  $\sqrt{s} = 400\text{-}500 \text{ GeV}$  desirable

## RHIC Run 5 (22 GeV) Final Delivered Cu-Cu Luminosity



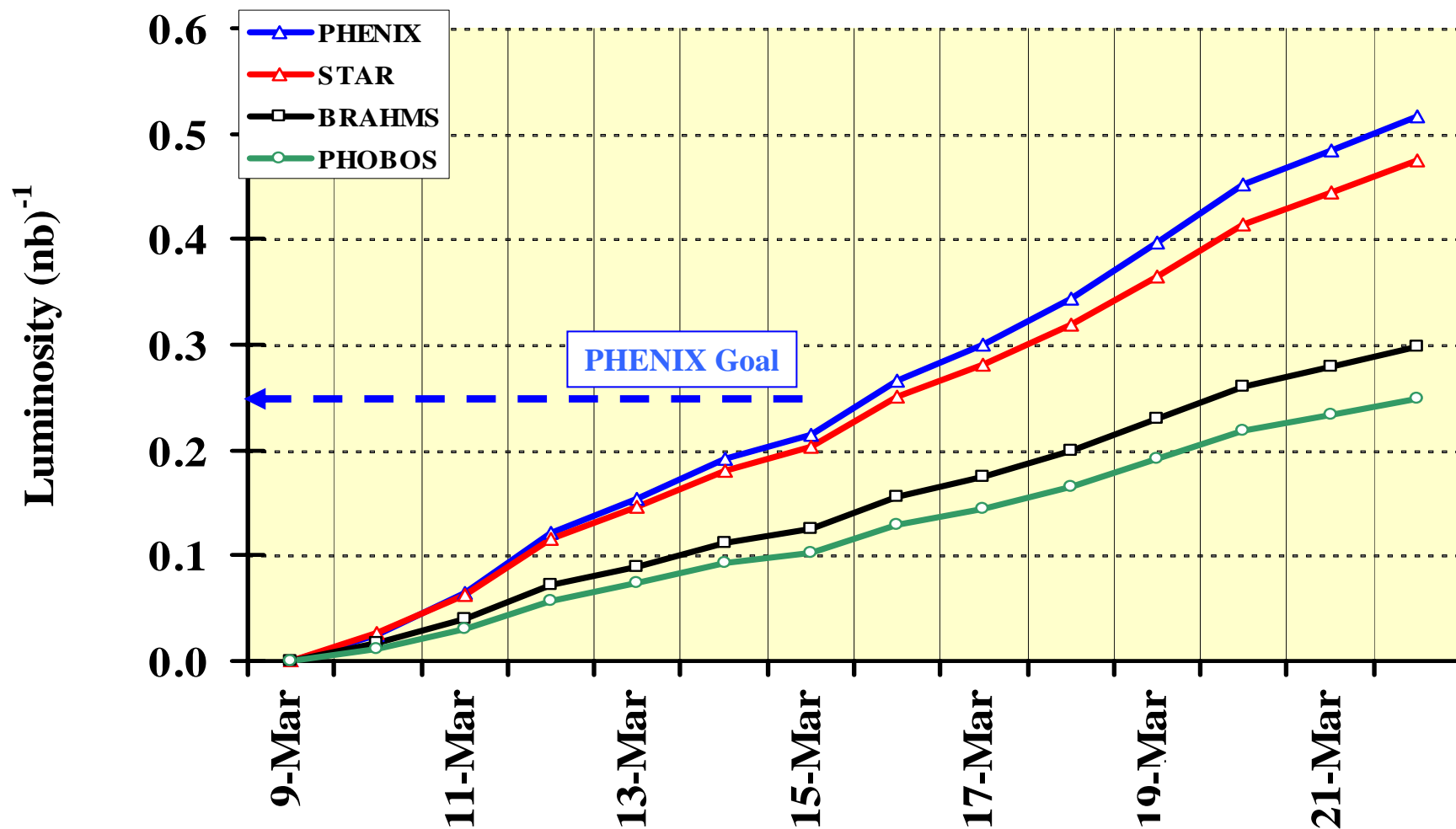


**Total = 205.5 hours**

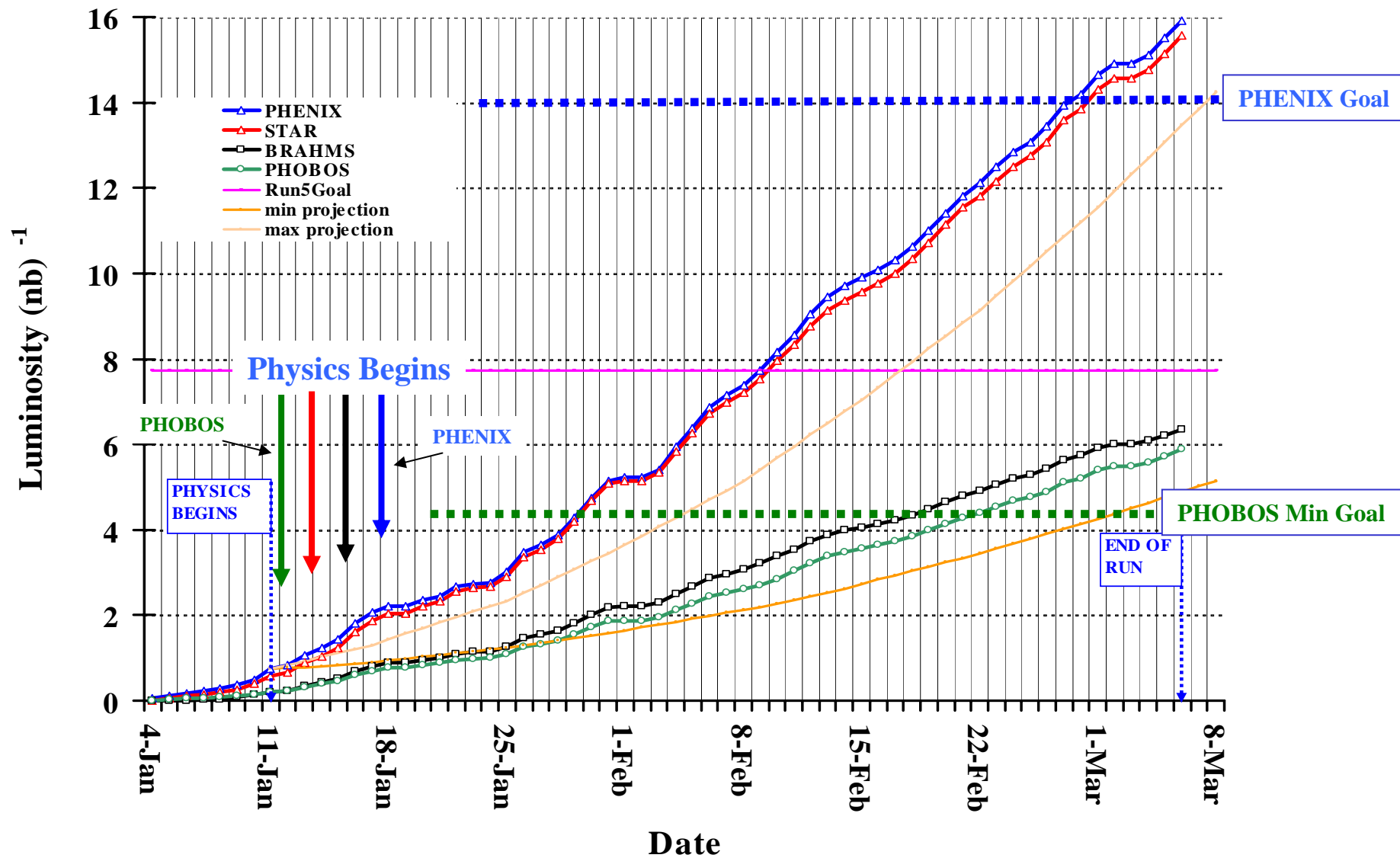
**0130 10 Mar – 1330 22 Mar = 300 clock hours**

**68.5% or 115 hrs/week average**

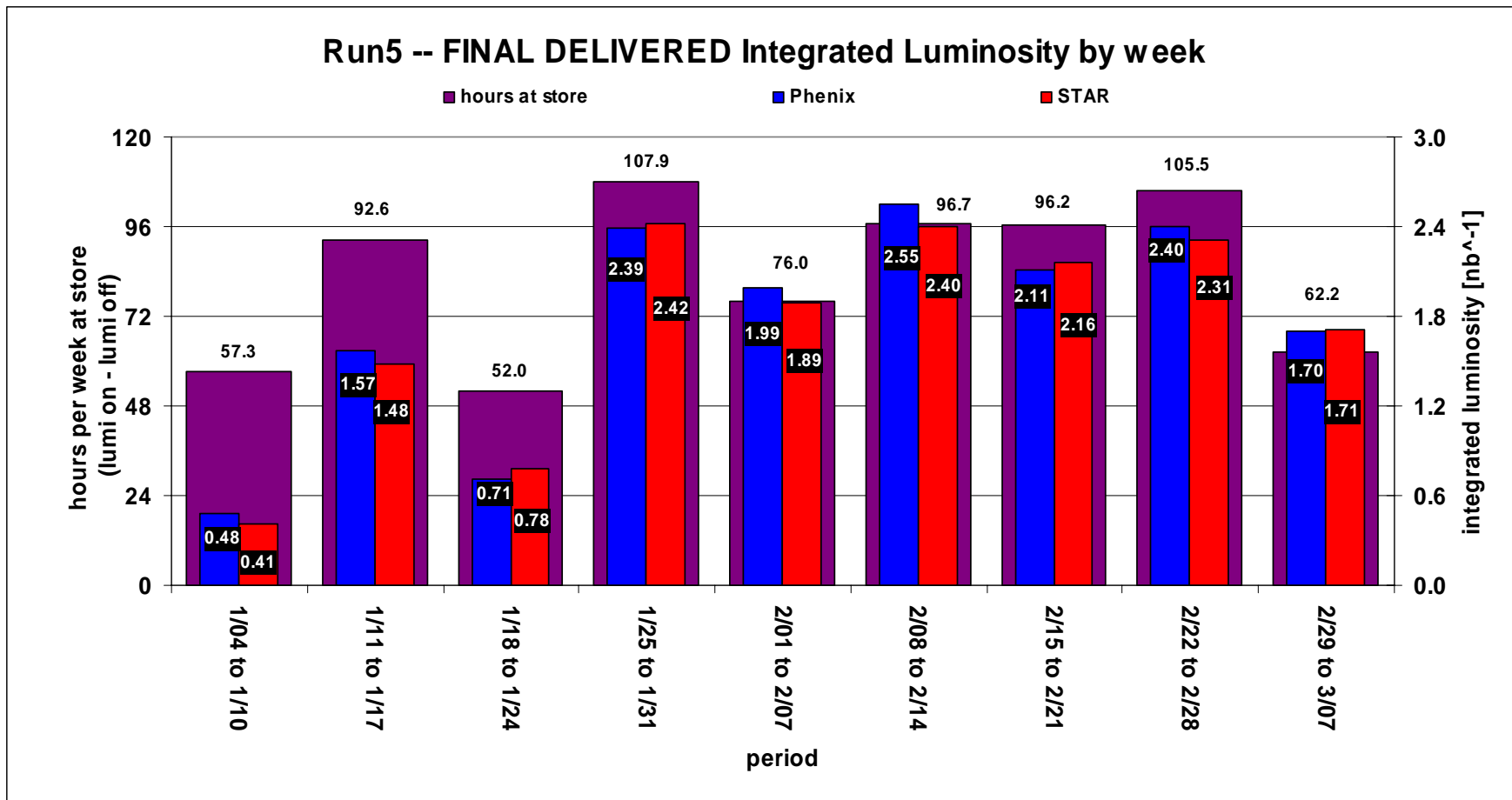
# RHIC Run 5 (62 GeV) Final Delivered Cu-Cu Luminosity



# RHIC Run 5 Final Delivered 100x100 GeV/n Cu-Cu Luminosity






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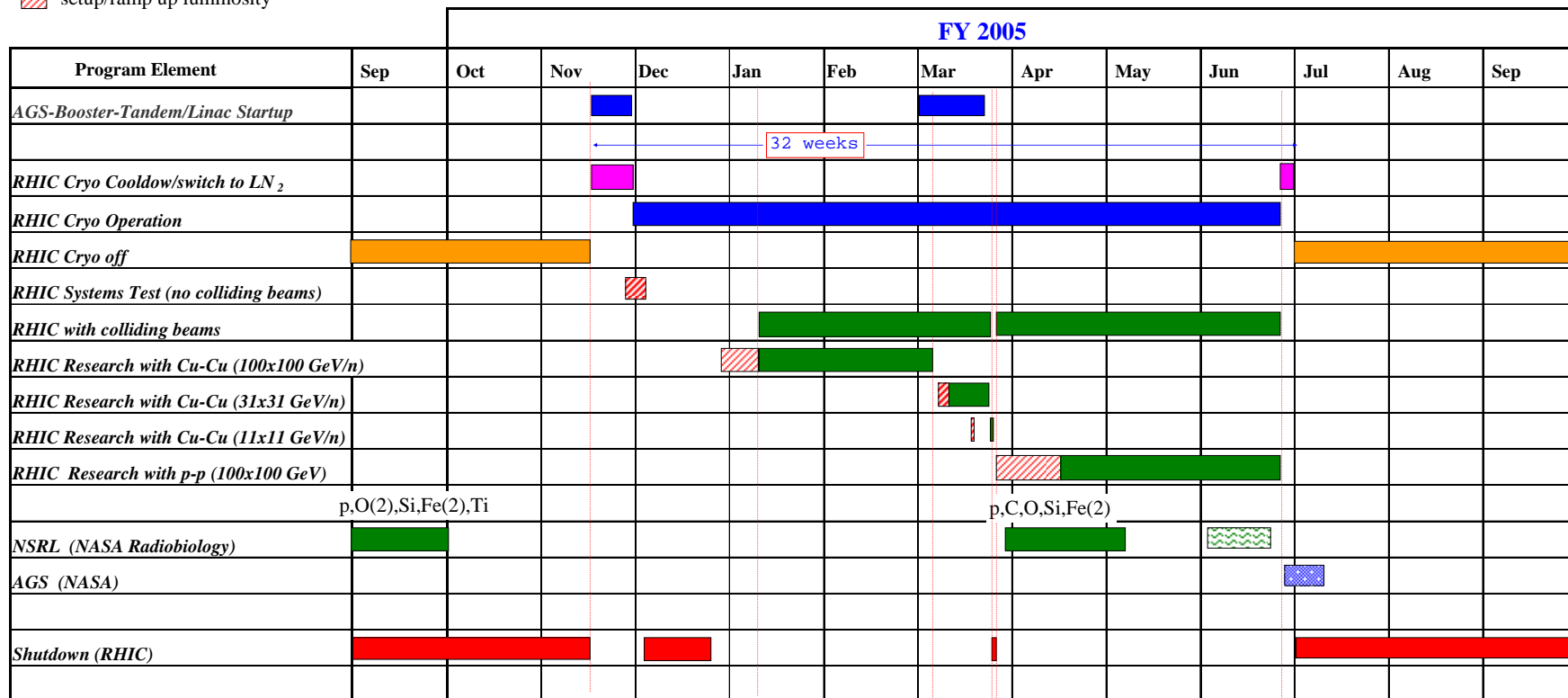


# C-A Operations-FY05

22 Feb 05

-  pending approval/funding
-  schedule to be determined
-  setup/ramp up luminosity

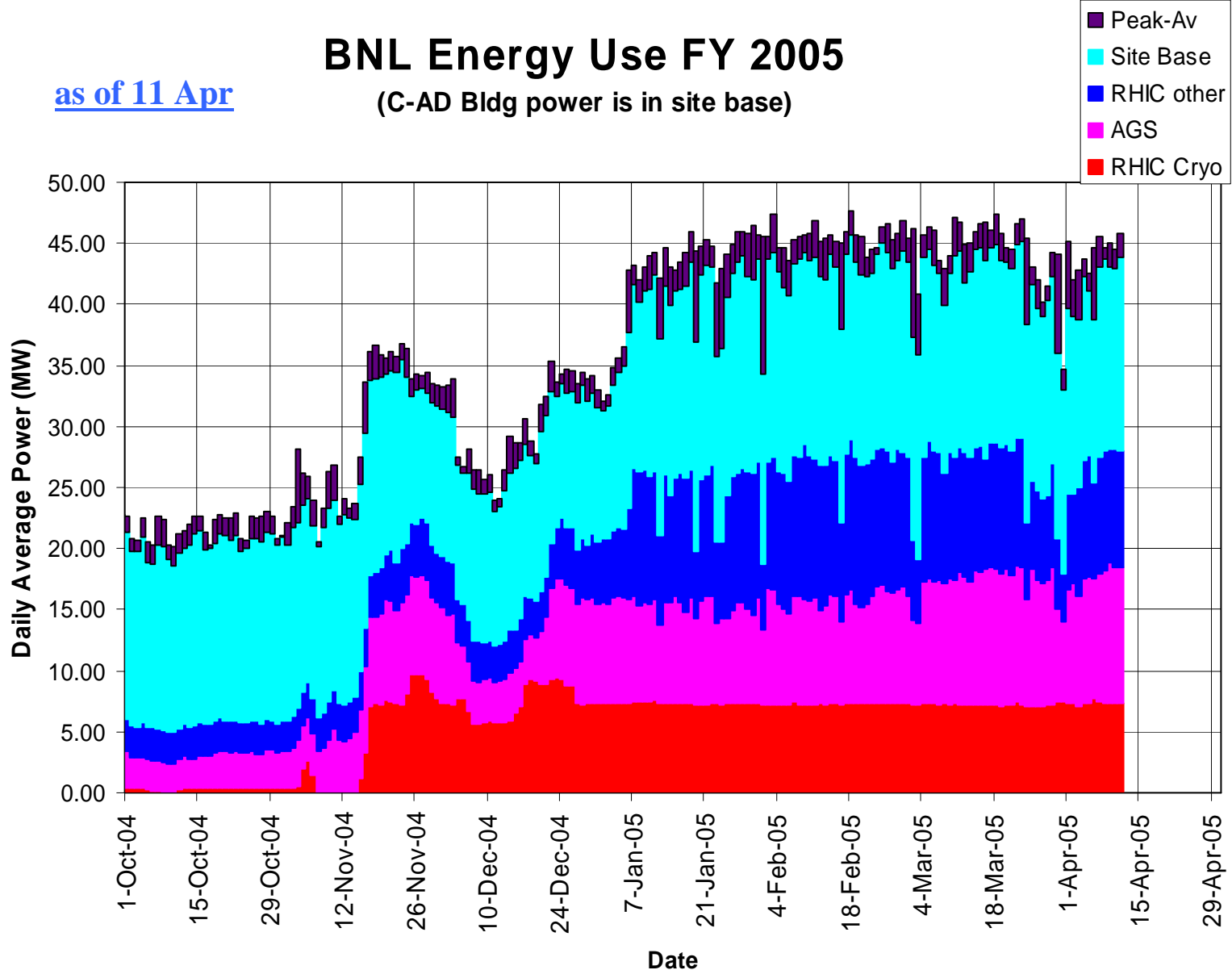
*Schedule - subject to change*



# BNL Energy Use FY 2005

as of 11 Apr

(C-AD Bldg power is in site base)





# RHIC Machine/Detector Planning Meeting

17 November 2004

## Purpose of this meeting:

- To address issues and priorities relating to the optimization of physics output from RHIC experiments.
- To discuss and promulgate policy (when needed).